tension and resistance of the vocal ligaments, and on the pressure of the column of air in the trachea.

3. The grave tones vary directly, and the acute tones inversely, as the vibrating length and tension of the vocal ligaments.

4. The vocal tube is adjusted to vibrate with the glottis by the combined influence of its variations of length and of tension.

5. The elevation of the larynx shortens the vocal tube; and its depression produces the contrary effect. The diameter and extension of the tube vary reciprocally with the length.

6. The falsetto tones are produced by a nodal division of the column of air, together with the vocal tube, into vibrating lengths.

7. The pitch of the vocal organs, when in a state of rest, is, in general, the octave of their fundamental note.

The paper is illustrated by several drawings.

8. "Du Son et de l'Electricité." Anonymous, with the signature of *Hermes*. Being a Prize Essay for the Royal Medal.

This paper contains the account of a great number of facts and observations, collected from various sources, on the subject of the relations subsisting between electricity, the production of sound, the crystallization of bodies, the transmission of heat, the emission of light, and various atmospheric changes; from the consideration of which the general conclusion is drawn that all these phenomena are perhaps the results of the undulations of some ponderable material.

9. "Physiological Remarks on several Muscles of the Upper Extremity." By F. O. Ward, Esq., Medical Student at King's College, London. Communicated by P. M. Roget, M.D., Sec. R.S.

There is a remarkable fold in the tendon of the pectoralis major muscle, described by all anatomists, but the purpose of which has never yet, as the author believes, been explained. The muscle itself consists of two portions, one smaller and upper, arising from the clavicle, and passing downwards and outwards to an insertion in the humerus at a greater distance from the shoulder-joint than the place where the tendon of the larger and lower portion of the muscle, which arises from the sternum and ribs, and has a general direction upwards and outwards, terminates. Thus the respective portions of tendon belonging to the two divisions of the muscle are found to cross each other; the margin of that proceeding from the lower division passing behind, and appearing above that which proceeds from the upper fibres of the muscle. The forces exerted by each portion of the muscle being thus applied to parts of the bone at different distances from the fulcrum, act with different mechanical powers; which the author finds in every case to correspond exactly with the variations in the effects required to be produced, under different circumstances, by these muscular actions. Those muscular fibres, the tendon of which is inserted nearest to the centre of motion, and which consequently act by a shorter lever, are adapted to motions requiring a less force, but a greater velocity: and such is precisely the mechanical condition of the lower portion of the pectoralis major, which is employed more